

Partner Update

U.S. Department of Energy • Office of Energy Efficiency and Renewable Energy

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September – October 2002

New Tech Manual: Energy-Efficient Schools Design



For the architects, engineers and project managers who design and build schools, help is on the way – comprehensively detailed help, as far

as energy efficiency is concerned. The U.S. Department of Energy has produced *The National Best Practices Manual for Building High Performance Schools* to guide the design and retrofit of energy-saving K-12 schools.

The manual underpins the less-detailed *Energy Design Guidelines for High Performance Schools*. The seven

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DC Hosts Solar Decathlon



Construction under way: Fourteen teams from universities around the country erected fully functional solar-powered dwellings on the National Mall in Washington, DC.

Fourteen student teams from colleges and universities around the country convened in Washington, DC, September 26-October 6, to determine which one could build the most energy-efficient solar house. Each team assembled a small house on the National Mall that ran entirely on solar energy available within its perimeter. During the course of the Solar Decathlon, the collegiate teams competed in 10 contests in various categories. All of the energy needed by a typical household, including enough to operate its transportation and a home-based business, had to be met with solar power.

The multidisciplinary nature of the competition encouraged architecture and engineering students to collaborate to build energy-efficient solar houses. Students from other disciplines, such as marketing, communications, graphic arts, analysis, and computer science, also contributed to the success of the house projects. The organizers hope the joint effort will encourage students to continue to work together when they return to campus—and perhaps even after graduation.

Each team created a Web site, including information that explains the design, engineering and operation of its house, along with descriptions of the products and technologies used. The teams also provided descriptive handouts about their houses.

Visitors toured the Solar Decathlon Solar Village and energy-efficiency exhibits on the

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DOE and AIA: Designs for the Future



AIA's Norman Koonce (l) and DOE's David Garman sign the official Memorandum at the Solar Village on the National Mall in Washington.

The U.S. Department of Energy (DOE) and the American Institute of Architects (AIA) symbolically put their names on a strategy for energy education, efficiency and renewables during a ceremony on the National Mall in Washington, DC, October 4.

David Garman, Assistant Secretary for Energy Efficiency and Renewable Energy, and Norman L. Koonce, executive vice president of AIA, signed a memorandum of understanding (MOU) that renewed and strengthened a commitment between DOE and AIA to work together toward common goals.

The signing took place amid a temporary "village" of solar-powered houses on the Mall. Fourteen teams of architecture and engineering students erected the village for the Solar Decathlon competition, an appropriate backdrop for a ceremony underscoring the important interplay of education, building design and energy use.

"I know there are many schools visiting today from DC, Virginia and Maryland," Garman said in prepared remarks. "We hope you are excited by what you see and will be one of the students in the future who will enter contests like this

when you go to college."

Referring to DOE's strategic partnership with AIA, Garman said, "We are affirming our relationship once again because we recognize that together we can be a positive force for changing our nation's energy habits."

Koonce, who also serves as chief executive officer of the architects' trade group, cited the long history of cooperation between his group and DOE as he stressed the idea of a culture of innovation.

"We must instill a new appreciation for the intelligence and foresight of developing ways to use renewable energy," Koonce said in his prepared remarks. "And if the past is any prologue, I am confident from our twenty-three years of working together we are more than equal to the challenge."

An earlier agreement between DOE and AIA had lapsed. The new MOU said the two organizations will continue their joint work by:

- Creating buildings conducive to resource efficiency;
- Encouraging improvements in the quality of the indoor environment and occupant productivity;
- Advocating increased use of renewable, clean energy sources;
- Working to reduce the environmental impact of the built environment;
- Promoting global economic opportunities through internationally recognized, high-performance designs and energy-efficient structures.

DOE continues to work with architecture students and professionals. Department representatives are planning a roundtable with the American Institute of Architecture Students, the Association of Collegiate Schools of Architecture, and the National Organization of Minority Architects to discuss what architecture students can do to further the cause of energy savings.

For more information on DOE's involvement with AIA, contact Nick Keller at nkeller@aspensys.com or Maggie Kennedy at mkenedy@aspensys.com.

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New Tech Manual: Energy-Efficient Schools Design

regional guidelines are tailored to climatic zones of the 48 contiguous U.S. states and can serve as guides not only for designers, but also for the school boards and others who must make decisions on what is to be built or rebuilt.

The manual is more than 350 pages of specific technical information. It was developed for the Rebuild America program by the National Renewable Energy Laboratory (NREL) and Eley Associates, a San Francisco-based architectural and engineering consulting firm devoted to energy efficiency.

"It took two years of discussions, consensus-building and sorting through the advice of experts to put the manual together," said Patricia Plympton, Project Coordinator at NREL. The success in building that consensus was one of the most gratifying parts of the whole process for her.

"Rebuild America was approached by many different stakeholders that requested these kinds of guidelines," she said. Among the most interested parties were the **National Association of State Energy Officials** (NASEO) and school partners.

Architects, engineers and school facilities managers from more than 30 states participated in the process, along with several state energy offices. About 150 people reviewed the manual before the final content details were determined.

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Gail McKinley Retires from Department of Energy



Gail McKinley, Program Lead for the Weatherization and Intergovernmental Program in the U.S. Department of Energy (DOE), retired at the end of September. She provided leadership to DOE's State Energy Program for more than a decade. McKinley helped manage the State Energy Program, Rebuild America and the Weatherization Assistance Program.

McKinley began her career working for the Community Economic Opportunity Council in Cleveland, OH. She moved to Washington, DC in 1968 to join the War on Poverty and subsequently became involved in the struggle for energy independence in response to the 1973 oil embargo.

She had been involved in managing the state grant programs since 1976, with responsibilities ranging from strategic planning and budget formulation to resource management and state program information systems.

"The State Energy Conservation Program was just a month old when I joined up in January 1976," she recently noted in a farewell message. "What luck for me to be associated with such a great program for the rest of my career! With my retirement at the end of September, I am proud to see this program looking stronger than ever and widely recognized as the core program for delivering a myriad selection of energy-efficiency and renewable-energy services to the nation's energy consumers."

Continued from page 1 **DC Hosts Solar Decathlon**

National Mall between September 26 and October 6, 2002. Students were on hand to lead guided tours of their houses for the visiting public.

The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) organized the competition. BP Solar, Home Depot, Electronic Data Systems, and the American Institute of Architects (AIA) sponsored the event.

More information about the Solar Decathlon is available at www.rebuild.org/news/news.asp. Just type "decathlon" into the news search.



View From DC By Daniel Sze

October is Energy Awareness Month and a good time to reflect on whether saving energy is registering on the radar screen of the American people. From a Rebuild America perspective, it appears that the message is getting through. Our partnerships continue to grow in numbers, moving ever closer to the 500th partnership milestone.

As of mid-September, our Web site shows that Rebuild America partnerships have made energy-saving improvements to more than 508 million square feet of building space, which translates into annual savings of \$293 million—or more than 36 miles of railroad cars filled with coal.

I encourage every partner and partnership to use Energy Awareness Month as an opportunity to get some key messages out to the American public about saving energy. This can take the form of:

- Sending out press releases with energy-saving tips to your local media
- Offering partnership representatives as media spokespersons about saving energy.

What messages do we want to get out during Energy Awareness Month? Here are a few:

- By saving energy, you help the environment by reducing energy demand and the burning of fossil fuels to heat and cool buildings.
- Americans help the nation become more energy secure by saving energy and reducing our dependence on foreign oil.
- The savings that result from an investment in energy efficiency can offset the expense of making the improvements.
- Our cities can reduce energy costs in municipal buildings by at least 20 percent by taking common-sense steps to save energy and taxpayer dollars.
- Cities are making progress on the U.S. Conference of Mayors resolution on energy reduction.
- Our schools can cut their energy expenditures by 25 percent on average, freeing valuable funds that can be redirected to pay for books, computers, field trips and increases in teachers' salaries.
- By buying fuel-efficient vehicles, Americans are helping to keep the air clean and reduce the risk of cancer, sending a message to the automobile industry.

This last point ties into the U.S. Environmental Protection Agency's announcement last month that there is a link between pollution from diesel trucks

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Association of Energy Engineers



Albert Thumann

This year the **Association of Energy Engineers (AEE)** celebrates its 25th anniversary; it also took the significant step of forming a Strategic Partnership with Rebuild America. AEE, which throughout its history has consistently worked to promote the benefits of energy efficiency, fits perfectly into the Rebuild America program.

Founded by **Albert Thumann**, who is also currently its executive director, AEE is a nonprofit professional society with 9,000

members in 70 countries. Since its inception, AEE has taken a lead role in disseminating the latest information on energy-efficient technology.

Since AEE joined Rebuild America on April 24 as a Strategic Partner, AEE members have “gained access to efficient building technologies,” says Thumann. Rebuild America also provides AEE chapters with a new “opportunity for accessing professional speakers and authorities in the area,” he added. He also noted, however, that he does not view the relationship as completely one-sided.

“Through AEE conferences, seminars, certification programs and publications, AEE has helped disseminate vital information to accomplish many of Rebuild America’s objectives and to further the technology exchange in green buildings and high-performance buildings,” says Thumann. “We are proud to be a Strategic Partner and look forward to a growing relationship with Rebuild America.”

AEE may be a new Strategic Partner, but it has advanced the notion of energy-efficient buildings for more than two decades in a variety of ways. It hosts the annual World Energy Engineering Congress, the largest energy-efficiency event in the United States. This year the event will be held in Atlanta, October 9 – 11, and will include more than 200 presentations and a companion exposition. DOE’s Office of Energy Efficiency and Renewable Energy co-sponsors the Congress.

AEE also hosts other important conferences including the Business Energy Solutions Conference & Expo, to be held this year at the Gaylord Palms Resort and Convention Center in Orlando, FL. This conference’s agenda focuses on the economic gains of implementing lighting and heating, ventilation and air conditioning upgrades.

AEE publishes two critical industry journals, *Energy Engineering* and *Strategic Planning for Energy and the Environment*. These publications aim to educate building owners, consultants and contractors on green buildings and their benefits.



At the core of its efforts, AEE sponsors a professional training program, because it understands that knowledge and its continuing evolution are critical to the success of energy-efficiency investments in buildings. To date, more than 30,000 energy professionals have received training from AEE in the latest advances and uses of energy technology.

“AEE has helped disseminate vital information to accomplish many of Rebuild America’s objectives”
– Albert Thumann, AEE

All of AEE’s past and future efforts will aid Rebuild America in its quest to convince the country — community by community — of the benefits of energy education and building retrofits. This partnership is a multi-year program tapping the many resources of AEE, its members and chapters.

“AEE is comprised of 44 chapters, strategically located in every major U.S. marketplace,” says Thumann. “Rebuild America now has the opportunity to present each of them with the technical tools and success stories that have made it a vital organization, and the chapters, in turn, will take Rebuild America’s messages to their communities.”

AEE publications will also be a new place to feature Rebuild America products and services, expanding Rebuild America’s outreach to key designers and constructors of high-performance buildings.

For more information on AEE and its programs, visit www.aeecenter.org. You may also email info@aeecenter.org or call 770-447-5083.

New Oregon Middle School a Model for Energy Efficiency

School officials in The Dalles, OR unveiled the town's new middle school at a dedication ceremony on August 22, opening for students one of the most energy-efficient schools in the nation.

Through this new construction project, **Rebuild The Dalles Schools** reduced operating costs for its middle school by 45 percent. Because the school includes sustainable building materials and energy saving technologies, The Dalles School District applied for the gold certification level under the Leadership in Energy and Environmental Design (LEED™) program. The middle school is the first school in the state to apply for LEED certification.

"The Dalles School District has created a high-performance school that is an asset to the community, enhances teaching and learning, reduces operating costs and protects the environment," notes **Michael Grainey**, director of the Oregon Office of Energy.

The Dalles Middle School is a brand new two-story, 97,000 square-foot facility that incorporates innovative design and technology to minimize energy consumption. Despite its state-of-the-art technology and features, the town built the school in only one year. It has a 600-student capacity.

The town built the school after the original school was damaged by underground movement of water and soil. The level of innovation designed into the school is remarkable.

South-facing windows incorporate horizontal shelves that shade the lower two-thirds of each window, reducing the build-up of heat. The top shelves reflect sunlight into rooms. This indirect light reflects off the ceilings, further brightening the rooms. Vertical sunscreens on west windows prevent harsh afternoon sunlight from overheating the building, but do not prevent views of the outside.

Skylights and large, energy-efficient windows deliver natural light throughout the school.

Classrooms are equipped with a tubular skylight, which reflects sunlight down a metallic reflecting tube to the rooms of this two-story building. The airtight tubes minimize heat transfer and acrylic domes on top block harmful ultraviolet rays. Diffusers spread the light evenly throughout the room. These tubular skylights even work on cloudy days by reflecting ambient light down the shaft. Classrooms are also equipped with sensors that adjust the light levels of T-5 fluorescent lamps to supplement the natural light. T-5 lamps are more efficient than T-12 lights commonly in use today.

Ventilation stacks, with adjustable dampers, are located throughout the building to draw fresh air into the classrooms.

The town's previous middle school was built in the 1950s as a temporary structure to accommodate families relocated to construct a local dam. Additions were added to the school

in the 1960s. Although plans called for the school to last only 20 years, it was used for more than 40 years.

As the school aged, underground water from neighboring orchards created a landslide under the structure that caused cracks in the walls. Most students were forced to attend classes in portable modular classrooms and in a 100-year-old elementary school. Some children even received their lessons in a vacant grocery store.

The damage eventually forced the condemnation and

The Dalles School District has created a high-performance school that was brought in on time, on budget and cost less to build than a conventional facility

demolition of all campus buildings.

Because the new middle school is located on the same property, a massive underground retaining wall was constructed to prevent future water damage. The rock-filled "key trench" reaches down to the bedrock to stabilize the ground. Its drainage system includes a groundwater pump system so that 58-degree water that once caused so much damage to the buildings now is used with a heat pump as well as to irrigate the school grounds.

"This will save thousands of gallons of potable water," notes **Tami Francis** of The Dalles School District.

Local school officials dedicated the building in August amid much enthusiasm. At the ceremony, Grainey presented **Cheryl Crawley**, superintendent of The Dalles School District, and principal **Jan Anderson** with a High-Performance School Award.

Those in attendance included U.S. Department of Energy Seattle Regional Office Director **Kathy Pierce**; **Lorenz V. Schoff** of EnergySmart Schools; **Gregory Churchill**, energy analyst, Oregon Office of Energy; and **Betty Merrill**, school program specialist, Oregon Office of Energy/Oregon Rebuild America representative.

The Portland-based *Daily Journal of Commerce* named The Dalles Middle School one of the state's top construction projects for 2002. While local students will benefit from the better learning environment, other communities throughout the nation will benefit by studying this model high-performance school.

The Dalles is located 80 miles east of Portland.

For more information, contact Betty Merrill at 503-378-6510 or betty.merrill@state.or.us.

Rebuild America Honors Energy Champions

When Rebuild America officials and partners gathered at the 2002 State Energy Program/Rebuild America National Conference in New Orleans this summer, a highlight of the meeting was the presentation of the annual Energy Champion Awards.

The awards ceremony was held on August 1 in the ballroom of the Hotel Inter-Continental. The program, led by John Millhone, the U.S. Department of Energy's director of the Weatherization and Intergovernmental Program, was accompanied by an impressive audio-visual display.

The energy-saving projects were judged primarily on the basis of their measurable results in energy and cost savings, and square footage retrofitted. Other criteria included less quantifiable factors, such as the challenges the organizations and individuals overcame and the innovation they applied. Another important consideration was how the projects affect and benefit communities.

The 2002 Rebuild America Energy Champion Award winners are:

- **Wisconsin Focus on Energy**, for EnergySmart Schools (K-12). The program has produced more than \$3.6 million in annual energy costs savings.
- **Rebuild Duke University Facilities**, for Universities and Colleges. The partnership has completed retrofits to 3.3 million square feet of space, yielding \$1.2 million in annual energy cost savings. The projects include campus-wide lighting, water conservation and heating, ventilation and air-conditioning improvements to 114 buildings.
- **Rebuild Bergen County**, of New Jersey, for Local Government. Its free energy-use audits have helped bring about upgrades to a variety of county facilities and projects for the City of Hackensack, the Borough of Glen Rock and three boards of education. The total energy savings is over \$1.2 million per year.
- **Sustainable Housing Innovation Partnership (SHIP)**, led by Spokane Neighborhood Action Programs, for Public and Affordable Housing. The first phase of SHIP's Riverwalk Point project will be a five-building, 52-unit housing complex with a variety of energy-saving elements built into it.
- **Rebuild New Mexico**, for Commercial Buildings. Because of this community partnership, 4.9 million square feet of commercial building space has been assessed for energy-savings opportunities, more than \$1 million of annual energy savings are in progress, and future energy-efficiency improvements in commercial buildings are expected to result in \$800,000 in additional savings per year.
- **Rebuild California**, operated by the California Energy Commission, for State Partnership of the Year. Thanks to



Person of the Year, Rick Gerardi, NYSERDA with John Millhone

Right: Strategic Partner of the Year, NEED, accepted by Mary Spruill



2002 National Energy Champions from left front row: John Millhone, DOE; Stuart Hughes, Oakland Housing Authority; Councilman Steve Holmes, City and County of Honolulu; Charlie Schneider, Wisconsin Focus on Energy; Gene Bustamante, Rebuild Central New Mexico; (from left back row) Dom Aiello, Rebuild Bergen County; Peter D'Antonio, Sarnafil Inc.; Julie Dhatt-Honekamp, SHIP; Mary Spruill, NEED; Robert Pernel, Rebuild California.

this partnership, energy-efficiency improvements have led to more than \$20 million of annual energy costs savings.

- **Sarnafil Inc.**, a division of Sarna, for Business Partner of the Year. Sarnafil estimates it has installed more than 3 million square feet of white reflective roofing for Rebuild America community partnerships, which sharply cuts cooling costs.
- **NEED Project** (National Energy Education Development Project), for Strategic Partner of the Year. NEED has incorporated the Rebuild America/EnergySmart Schools program into every one of its 39 state programs.
- **Oakland Housing Authority**, for Partnership of the Year. Under its auspices, more than 2,290 public housing



Business Partner of the Year, Sarnafil, Inc., accepted by Peter D'Antonio



Partnership of the Year, Oakland Housing Authority, accepted by Stuart Hughes



Partnership Leader of the Year, Steve Holmes, Rebuild Hawaii

units received energy-efficiency improvements, at 242 sites. By using a performance contract, improvements will be paid for by utility savings. Annual utility savings are projected at about \$362,000.

- **Steve Holmes**, President of Rebuild Hawaii and a Honolulu councilmember, for Partnership Leader of the Year. He pushed for the city's adoption of the Model Energy Code in 1994, for buildings. He led the way for extension of the energy-efficiency measures into the residential sector. This legislation is expected to save taxpayers more than \$300 million over 20 years.
- **Rick Gerardi**, Director of Residential Energy Affordability Programs in the New York State Energy Research and Development Authority (NYSERDA), for Person of the Year.

Many radio stations asked to interview their hometown and home-state stars. Some interviews were conducted by telephone from the conference site, and more interviews were scheduled when conference attendees returned home.

State Energy Program Recognizes Standouts



2002 SEP National Recognition Award Honorees from left front row: John Millhone, DOE; Jim Westberg, Arizona Department of Commerce; Mike Glenn, Utah Energy Office; Lorilee Crisostomo, Guam Energy Office; (from left back row): S.J. Seymour; Greg Guess, Kentucky Department of Natural Resources; Judy Dyer, NETL; Greg Lenaghan, Illinois Department of Commerce and Community Affairs; John Nunley, Wyoming Business Council

The State Energy Program, a sister program of Rebuild America within the U.S. Department of Energy, recently honored its outstanding leaders with its National Recognition Awards. A joint awards ceremony was held on August 1 at the 2002 State Energy Program/Rebuild America National Conference in New Orleans.

John Millhone, Director of DOE's Weatherization and Intergovernmental Program, presented the awards. Most of the honorees were present and came to the stage of the crowded ballroom of the Hotel Inter-Continental to be recognized.

The 2002 State Energy Program National Recognition Award winners are:

- **Shirley Bartlett**, Maine Department of Economic and Community Development
- **Lorilee Crisostomo**, Guam Energy Office
- **Judy Dyer**, National Energy Technology Laboratory and formerly of the West Virginia State Energy Program
- **Mike Glenn**, Utah Energy Office
- **Greg Guess**, Kentucky Department of Natural Resources
- **Lois Jackson**, Vermont Department of Public Service
- **Henry Kurth**, Illinois Department of Commerce and Community Affairs
- **Janet Lockhart**, South Carolina Energy Office
- **John Nunley**, Wyoming Business Council
- **Cory Plantenberg**, Washington Office of Trade and Economic Development
- **Jim Westberg**, Arizona Department of Commerce

Partnerships Save Energy Dollars Through Water Conservation

At the end of August, nearly half of the contiguous United States had experienced “moderate” to “extreme” drought according to the National Oceanic and Atmospheric Administration’s National Climatic Data Center. Although communities are at the mercy of Mother Nature to provide the much-needed rainfall, they can control the amount of water consumed.

The majority of Rebuild America partnerships focus on energy savings. But water conservation is increasingly being incorporated into projects, not only to save this valuable resource, but also to lower utility bills. Folks perceive the two as being distinct, but in reality, they are quite closely related.

Sustainable Housing Innovation Partnership (SHIP) – the 2002 Energy Champion Award winner for Public and Affordable Housing and a Rebuild America community partnership – incorporated water-saving features into its acclaimed Riverwalk Point housing project in Spokane, WA. Water-saving measures in the affordable housing complex include native/drought-resistant landscaping; low-flow faucets, showerheads and toilets; and a rainwater collection system to irrigate the surrounding grounds.

Oakland Housing Authority (OHA), Partnership of the Year winner, was able to save 30,000 to 50,000 gallons of water a day by replacing 1,600 older toilets with ultra-low-flow toilets. OHA also installed low-flow showerheads, faucet aerators and ENERGY STAR® washers and dryers in shared laundry rooms at 18 locations. The improvements, combined with repairing leaks, save OHA an estimated 63 million gallons annually. This translates into more than \$350,000 in water cost savings per year.

Rebuild Duke University Facilities, Energy Champion Award winner for the Universities and Colleges market sector, installed more than 1,000 faucet aerators and 900 low-flow flush valves throughout campus restrooms. The retrofit paid for itself in less than one year through lower water and sewerage bills.

According to Rebuild America Business Partner **Water & Energy Savings Corporation (W&ESCO)**, apartment buildings with older fixtures consume between 55 and 100 gallons of water per resident each day – depending on who is paying the bill (the owner or resident). By installing low-flow showerheads and toilets, and faucets with aerators, water consumption can be reduced up to 30 gallons per day per resident.

Conservation measures accomplish more than just water savings – they also save energy. Less water use translates into less energy used for heating water, which reduces utility bills and maintenance costs. Installing a rainwater irrigation system can help lower pumping costs, thereby saving electricity.

W&ESCO also notes that many municipal water agencies are replacing chlorine with chloramines and other chemicals to purify water, which may damage rubber parts and other materials used in older toilets. Newer water-saving fixtures are more resistant to these new chemicals, which means fewer repairs for owners.

Dry conditions are expected to continue for much of the nation this fall, and the need for water conservation will intensify. Rebuild America community partnerships can do their part to ease water demand by installing cost-effective, water-saving fixtures.

Business Partners Help Partnerships Save Water

2RW offers a wide range of engineering services, including evaluating water use and potential for conservation, in existing structures through facility assessments. For more information visit www.rebuild.org/partnerships/bp_search.asp and select 2RW.

Falcon Waterfree Technologies specializes in water conservation technology. Its main product is a water-free urinal system—made up of a specially constructed urinal and replaceable cartridge—that does not need a flushing mechanism. The manufacturer estimates it saves 40,000 gallons of water per year on average. For more information visit www.rebuild.org/partnerships/bp_search.asp and select Falcon Waterfree Technologies.

Water & Energy Savings Corporation (W&ESCO) helps apartment owners, condo associations and housing authorities achieve water and energy savings through performance contracting. Through participation in Rebuild America, W&ESCO is pursuing other market sectors, as well. For more information visit www.rebuild.org/partnerships/bp_search.asp and select Water & Energy Savings Corporation.

Since 1991, **Waterless Company, LLC** has offered No-Flush™ urinals that work without using water or flush valves. The fixture, comparable in price to flush urinals, saves between 30,000-50,000 gallons of water per year on average. For more information visit www.rebuild.org/partnerships/bp_search.asp and select Waterless Company LLC.

Business Partner Offers Solution to Changing Times in Building Construction

Thanks to the combined efforts of Rebuild America and Building America, new energy-efficient products are quickly gaining popularity among builders. With a shortage of skilled labor, increasingly tight schedules, and stricter energy-efficiency and cost requirements, builders are always seeking better solutions that meet these demanding criteria and provide a high-quality end result.

Rebuild America Business Partner **Insulated Component Structures** (ICS) produces one such solution. ICS manufactures Structural Insulated Panels (SIPs). These are versatile, energy-efficient panels that can be turned into offices, shops, and classrooms – practically any type of structure. According to ICS, they are a “building product that is predictable, resource-efficient and cost-effective and that are used as floors, walls and roofs on all types of buildings.”

Recently, a group of interested consumers, including developers, school officials, policymakers and others were given a first-hand look at SIPs and how they are manufactured. On August 27, ICS hosted a tour of its manufacturing plant in Mocksville, NC and of nearby Davie High School, where SIPs have been installed. Visitors learned how these panels help reduce a building’s energy consumption by over 30 percent.

ICS makes SIPs by injecting polyurethane foam between two surfaces. A structural piece is embedded inside the panel to increase its strength. Through a cam lock system, individual units are conjoined to provide a sturdy wall, floor

or roof. ICS offers SIPs made with a range of materials from steel to fiber cement.

The SIP insulation system makes structures built with them highly energy efficient. Heat cannot easily pass through SIPs, meaning that less energy is needed to heat and cool the structures. Plus, without much training, workers can easily and quickly install the panels using the cam lock system. The U.S. Department of Energy’s (DOE) Oak Ridge National Laboratory found that SIPs are more energy efficient than traditional 2” x 4” walls because the insulation is more uniform. When installed, the SIP design and its cam lock system create no hidden gaps in the wall, which would lead to increased thermal transfer.

And SIPs are ENERGY STAR® rated products. ENERGY STAR is a Rebuild America Strategic Partner.

These panels are becoming more popular primarily because of their versatility. They can be used to fabricate many types of buildings. According to **Rick Lewis**, vice president of business development, SIPs can be used virtually anywhere. Tests on their strength and durability in a laboratory support his point, but real-life tests are even more convincing. SIPs have successfully weathered large-scale earthquakes, tornadoes and hurricanes – including Hurricane Andrew, confirming their practicality in a variety of applications and environments.

Those who toured ICS’s manufacturing plant and the nearby high school on August 27 now understand the

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New Tech Manual: Energy-Efficient Schools Design

Before this manual was put together, nothing like it existed on a national scale. NREL and Eley adapted much of the material from the Collaborative for High Performance Schools Inc.’s *Best Practices Manual, Volume II*, often referred to as the CHPS (“chips”) manual. That document was put together only for California, not for the many climatic regions of the nation. NREL and Eley, which also had helped on the CHPS manual, needed to expand and greatly modify the source material to create a manual with elements tailored to seven regions and reflecting the consensus of so many parties.

Parts of the national manual concerned with commissioning buildings also were adapted from guideline publications written by Portland Energy Conservation Inc., a nonprofit corporation that specializes in energy efficiency for buildings.

Besides its regional refinements, the national manual systematically covers an array of basic elements in design or retrofitting of buildings:

- Site design, including optimum building orientation, landscaping and construction methods;
- Daylighting and windows;
- Energy-efficient building shell, including insulation, cool roofs and radiant barriers;
- Lighting and electrical systems;
- Mechanical and ventilation systems, including heating, air conditioning and air flow;
- Renewable energy systems, covering geothermal, solar, wind and photovoltaic systems;
- Water conservation;
- Recycling systems and waste management;
- Transportation, including alternative fuels and alternative-fuel vehicles;
- Resource-efficient building products, including flooring, carpeting and wall panels; and
- Commissioning and maintenance.

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Snap Shot: Rick Gerardi



Rick Gerardi

Rick Gerardi is a program director with **NYSERDA–New York Energy \$mart Communities**, a Rebuild America community partnership. Rick was also named Person of the Year at this year's State Energy Program/Rebuild America National Conference.

Vital Statistics

Rick lives in upstate New York, east of Saratoga Springs, in a home overlooking the historic Hudson River. He has two children – Nikki, a student at Fordham University, and Chris, who attends Hartwick College. They are competitive snowboarders and avid Yankees fans, as is Rick.

How long have you been working with the Rebuild America program?

As we first created the Residential Energy Affordability Program (REAP) at NYSERDA in 1998, we looked for a community empowerment mechanism and a constituency-building process and found Rebuild America fit the bill to a tee.

How did you get into this line of work?

I've been involved in building and renovating homes, with a focus on energy efficiency and building performance, for over 20 years. Running the Weatherization Assistance Program for the State of New York for 14 of those years was a great and rewarding experience. It gave me the confidence and courage to push the envelope technically, while understanding the bottom-line importance of performance.

What brought you to Albany?

I attended college in New England and fell in love with the landscape, but couldn't quite get myself to move to the land

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View from DC*

and cancer – cleaner air through reduced energy demand means better health for Americans.

Rebuild America partnerships and partners need to carry these messages throughout the year – to their communities and to their elected representatives. Governments that are aware of partnership success stories are more likely to provide energy offices with the resources needed to sustain and expand significant energy-efficiency initiatives.

Daniel Sze is National Program Manager of Rebuild America.

of Red Sox fans. So, I did the next best thing – moved to rural Washington County in New York on the Vermont border to get the best of all worlds.

What do you find most rewarding about your work?

I love the combination of working technical issues within a public policy context, while being allowed the latitude to be creative in promoting innovative solutions to vexing building performance and energy problems. But, the most important and rewarding aspect of my life in this field has been my contact with the committed and conscientious people who represent the policymakers, contractors and practitioners of energy efficiency.

What do you like to do in your spare time?

Run, bike, ski, socialize, read, hangout...what spare time?

What is your favorite thing to do in the State of New York?

Hop on a train out of the Albany Rensselaer Station at 7 a.m. and be in New York City by 9:15 a.m. for a full day of work, after which a quick dinner with friends and a Yankees game to top it off.

What is your dream job?

Yankees bat boy.

What is your dream vacation?

Italy in October...this October.

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New Tech Manual: Energy-Efficient Schools Design*

Funded by DOE's Office of Energy Efficiency and Renewable Energy, the *National Best Practices Manual for Building High Performance Schools* is now available for downloading from www.rebuild.gov under Sectors, K-12 Schools, Resources; or from the EnergySmart Schools Web site. The manual and all seven regional guidelines also are scheduled to be available by the end of November on a single compact disc, which will be available from the Rebuild America Clearinghouse, rebuildorders@rebuild.org, 800-503-0098 or 252-459-4664.

Talladega College: An Energy Leader for Historically Black Colleges



The Talladega College campus features many historic buildings, many built before 1940 and all of which are good candidates for a planned energy assessment this fall.

Talladega College in Alabama has formed a Rebuild America partnership to help it achieve both energy savings and educational objectives. By taking the independent initiative to join Rebuild America and resolve some campus problems, they hope to be an example to other historically black universities and colleges that could benefit from reducing energy costs.

The school's historic buildings and limited fiscal resources inspired its administrators to explore more creative ways to reduce its energy expenditures and save money for educational purposes. Constantly challenged

by outdated energy systems and beleaguered by limited financial resources, they decided it would be smart to pursue a partnership with the U.S. Department of Energy (DOE) to take advantage of the vast technical resources at DOE's disposal.

Another important objective was to show other historically black schools how they could take action to improve campus facilities, reduce energy consumption and save money which could be reallocated to academic programs.

"Talladega College wants to be a leader in this area," says James Perkins, vice president of institutional advancement at Talladega.

"Because the college has so many older facilities with antiquated energy systems and structural characteristics that led to energy inefficiency, it made sense to pursue assistance from DOE, which knows how to solve these kinds of

problems," says Perkins. "We realized that finding a way to make the buildings more efficient and encourage more energy conservation on campus would lead to more money for the school."

"That was really the motivation," Perkins says. "That's the bottom line."

Talladega College has delineated a simple phased approach for its improvements in energy efficiency that should achieve some quick successes. Taking advantage of the resources of DOE's national laboratories, it will perform a campus assessment in the fall, develop an action plan over the winter, and implement the plan in spring 2003. While it has not signed a formal partnership with **Johnson Controls Inc.**, a Business Partner, Talladega College is in the process of establishing a relationship with the company.

Like other colleges and universities, historically black colleges and universities have limited budgets to conduct capital improvements, such as heating and lighting upgrades. And the historical significance of their buildings sometimes adds difficulty and expense to upgrades.

By being the first to take a dramatic step, Talladega College will be a tremendous influence in helping other universities and colleges identify helpful resources and the means to implement energy-efficiency improvements – which will mean more money for their most important task, educating America's young adults.

The college is interested in developing relationships with Rebuild America Strategic Partners. "We're seeking partnerships that make sense," says Perkins. "We don't need to reinvent the wheel. . . . But [energy-savings measures] haven't been done here."

For more information, contact James Perkins of Talladega College at jperkins@talladega.edu.

Continued from page 9

Business Partner Offers Solution

significance of ICS's new product to the evolving construction industry. The tour was also covered by the local newspapers and television, which demonstrated to the entire community how SIPs are made and used.

Davie High School erected SIP classrooms to accommodate increases in student enrollment. In the past, extra classrooms were housed in trailers. Now, they are more refined and substantially more energy efficient – approximately 70 percent more efficient than before. These classrooms are the first of their kind built in North Carolina.

Among those who toured the school were Larry Schoff,

EnergySmart Schools technical advisor; **Richard Baldauf** and **Thomas Hudkins**, Rebuild South Carolina Program Coordinators; **Wayne Jones**, Raleigh, NC architect; Charles Young and Mel Powers, program representatives of Rebuild America; and, from ICS, **Andrew Hansen**, president, and **Rick Lewis**, vice president of business development.

The *Winston Salem Journal* and the *Davie County Enterprise Record* covered this event and showcased the new classrooms.

For more information on ICS, contact Rick Lewis of ICS at rlewis@ics-sips.com.

Upcoming Events

November

5-7 Rebuild America Chicago Regional Peer Exchange
Crowne Plaza Hotel—Downtown at Historic Union Station, Indianapolis, IN *Contact Gavin Williams at 317-232-8979 or email gwilliams@commerce.state.in.us.*

8 Clark County, NV Energy Management Educational Workshop-Building Envelope
Clark County Government Center.
Call 702-455-5528 to RSVP or email adminserving@co.clark.nv.us.

13-14 International Energy Conference & Exposition,
Reno-Sparks Convention Center, Reno, NV
Visit <http://www.ptefinfo.com/>.

13-15 National Association of Energy Service Companies' 19th Annual Conference
Hyatt Regency Grand Cypress, Orlando, FL
Contact Mary Lee Berger-Hughes at 202-822-0954 or email mlb@dwgpc.com.

14-15 Energy in Schools Conference
Albany Marriott, Albany, NY
Contact Chris Mason at 413-774-6051 or email cmason@nesea.org.

19-21 Rebuild America Atlanta Regional Peer Forum
Edison Walthall Hotel, Jackson, MS
Visit <http://www.rebuild.org/events/eventdetails.asp?NewsID=1351>.



Muscatine, IA high school students install solar panels thanks to Muscatine Power and Water (MP&W), the lead organization for Rebuild Muscatine. MP&W sponsored a three-day, hands-on workshop earlier this year to teach the students, local electricians and utility employees how to install photovoltaic arrays.

Additional support came from Rebuild Iowa, Rebuild Muscatine,

The ESCO Group, Muscatine High School and The Foundation for Environmental Education—a partner of 1,500 Days: The Ohio Energy Efficiency Project.

Geoff Greenfield, of Third Sun Renewable Energy Services, based in Millfield, OH, conducted the training.

New Partnerships

- Harrisonburg City Public Schools, VA
- Arlington County Government, VA
- Jeffrey Place, OH
- Wheelersburg School District, OH
- Talladega College, AL
- Buhl Castleford Energy Conservation Coalition, ID
- St. Charles Parish Public Schools, LA
- Schools for Energy Efficiency, MN
- Town of Littleton, NH
- New York City/Stuyvesant Cove Energy Smart Communities, NY
- Robertson County Board of Education, TN

Marketing and Communications Rebuild America Help Line 202-466-7868

To submit news or story ideas, contact:

Brian Meeley, 202-466-7391, or email bmeeley@pcgpr.com

Check Us Out: www.rebuild.gov or 1-800-DOE-3732



Rebuild America is a network of partnerships – focused on communities – that save money by saving energy. These voluntary partnerships choose to improve the quality of life in their communities through energy efficiency. Rebuild America supports them with customized assistance backed by technical and business experts and resources.

Published bimonthly by the U.S. Department of Energy to report on Rebuild America activities, *Partner Update* now incorporates news from Building America and High Performance Buildings, energy-efficient initiatives of the Office of Energy Efficiency and Renewable Energy.



High Performance BUILDINGS

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